

CLAIMS:

1. A data recording method of modulating the power of a laser beam in accordance with a pulse pattern, projecting the laser beam onto a write-once type optical recording medium to form a record mark and recording data in the write-once type optical recording medium, wherein the pulse pattern is constituted by a pattern in which the power of the laser beam is set to a recording power P_w within a first period and a second period and the power of the laser beam is set to an intermediate power P_m lower than the recording power P_w within a third period provided between the first period and the second period, the length of the first period and the levels of the recording power P_w and the intermediate power P_m being set to satisfy $1.7T \leq t_{top2}$ and $1.4 \leq P_w/P_m$ where T is a length corresponding to one cycle of a reference pulse and t_{top2} is the length of the first period.
2. A data recording method in according with Claim 1, wherein the length of the first period is set to satisfy $1.7T \leq t_{top2} \leq 2.0T$ and the recording power P_w and the intermediate power P_m are set to satisfy $1.4 \leq P_w/P_m \leq 1.62$.
3. A data recording method in according with Claim 1, wherein the linear recording velocity is set equal to or higher than 14 m/sec during recording of data in the write-once type optical recording medium.
4. A data recording method in according with Claim 2, wherein the linear recording velocity is set equal to or higher than 14 m/sec during recording of data in the write-once type optical recording medium.

5. A data recording method in according with Claim 1, wherein record marks including 5T marks are formed in the write-once type optical recording medium during recording of data therein.
- 5 6. A data recording method in according with Claim 2, record marks including 5T marks are formed in the write-once type optical recording medium during recording of data therein.
7. A data recording apparatus for modulating the power of a laser
10 beam in accordance with a pulse pattern, projecting the laser beam onto a write-once type optical recording medium to form a record mark and recording data in the write-once type optical recording medium, wherein the pulse pattern is constituted by a pattern in which the power of the laser beam is set to a recording power Pw within a first period and a
15 second period and the power of the laser beam is set to an intermediate power Pm lower than the recording power Pw within a third period provided between the first period and the second period, the length of the first period and the levels of the recording power Pw and the intermediate power Pw being set to satisfy $1.7T \leq t_{top}2$ and $1.4 \leq Pw/Pm$ where T is a
20 length corresponding to one cycle of a reference pulse and $t_{top}2$ is the length of the first period.
8. A data recording apparatus in accordance with Claim 7, wherein the length of the first period is set to satisfy $1.7T \leq t_{top}2 \leq 2.0T$ and the
25 recording power Pw and the intermediate power Pm are set to satisfy $1.4 \leq Pw/Pm \leq 1.62$.
9. A write-once type optical recording medium in which data can be

recorded by modulating the power of a laser beam in accordance with a pulse pattern and projecting the laser beam thereonto, the write-once type optical recording medium being recorded with data for setting recording conditions necessary for setting the pulse pattern to a pattern
5 in which the power of the laser beam is set to a recording power P_w within a first period and a second period and the power of the laser beam is set to an intermediate power P_m lower than the recording power P_w within a third period provided between the first period and the second period, the length of the first period and the levels of the recording power
10 P_w and the intermediate power P_m being set to satisfy $1.7T \leq t_{top}2$ and $1.4 \leq P_w/P_m$ where T is a length corresponding to one cycle of a reference pulse and $t_{top}2$ is the length of the first period.

10. A write-once type optical recording medium in accordance with
15 Claim 9, wherein the length of the first period and the levels of the recording power P_w and the intermediate power P_m are set to satisfy $1.7T \leq t_{top}2$ and $1.4 \leq P_w/P_m$.

11. A write-once type optical recording medium in accordance with
20 Claim 9 which includes a light transmittable substrate, a dummy substrate and a recording layer provided between the light transmittable substrate and the dummy substrate and containing an organic dye.

12. A write-once type optical recording medium in accordance with
25 Claim 10 which includes a light transmittable substrate, a dummy substrate and a recording layer provided between the light transmittable substrate and the dummy substrate and containing an organic dye.